

AMENDMENTS TO THE CLAIMS

Claims 1-56. (canceled)

57. (original) Apparatus for use with a biologically-compatible-fluid pressure source, comprising:

an elongate carrier, adapted to be inserted through a proximal opening of a body lumen; and

a piston head coupled to a distal portion of the carrier and adapted to:
form a pressure seal with a wall of the lumen after the carrier has been inserted into the lumen, and

be withdrawn proximally through the body lumen in response to pressure from the fluid pressure source.

58. (original) The apparatus according to claim 57, wherein the lumen includes a gastrointestinal (GI) tract, and wherein the piston head is adapted to form the pressure seal with the wall of the GI tract after the carrier has been inserted into the GI tract.

59. (original) The apparatus according to claim 58, wherein the GI tract includes a colon, and wherein the piston head is adapted to form the pressure seal with the wall of the colon after the carrier has been inserted into the colon.

60. (original) The apparatus according to claim 58, wherein the piston head is adapted to be in direct contact with the wall of the GI tract after the carrier has been inserted into the GI tract.

61. (original) The apparatus according to claim 58, wherein an outer surface of the piston head forming the pressure seal with the wall of the GI tract comprises a low friction coating suitable for facilitating sliding of the piston head against the wall of the GI tract.

62. (original) The apparatus according to claim 58, wherein the piston head is shaped so as to define a proximal lobe and a distal lobe, the lobes being in fluid communication with each other.

63. (original) The apparatus according to claim 58, comprising a pressure-application tube in fluid communication with (a) a distal site within the GI tract distal to the piston head, and (b) the fluid pressure source, the tube adapted to introduce the pressure to the distal site.

64. (original) The apparatus according to claim 58, comprising:

a fluid source;

an image-capturing device, coupled to the carrier in a vicinity of a distal end of the carrier; and

at least one fluid supply tube coupled to the carrier, the tube in fluid communication with the fluid source,

wherein the distal end of the carrier is shaped so as to define one or more openings in fluid communication with the tube, the openings oriented so as to spray at least a portion of the image-capturing device when fluid is provided by the fluid source.

65. (currently amended) The apparatus according to ~~any one of claims 57-64, claim 57,~~ wherein the apparatus is adapted to facilitate passage of fluid out of the GI tract from a proximal site within the GI tract proximal to the piston head.

66. (original) The apparatus according to claim 65, comprising a vent tube in fluid communication with the proximal site and outside the GI tract, the tube adapted to facilitate passage of fluid from the proximal site to the outside, so as to reduce a pressure at the proximal site.

67-68. (canceled)

69. (currently amended) The apparatus according to ~~any one of claims 57-64, claim 57,~~ wherein the piston head is adapted to be inflated so as to form and maintain the pressure seal with the wall of the GI tract.

70. (original) The apparatus according to claim 69, comprising a piston-head-pressure sensor, adapted to sense a pressure within the piston head.

71-73. (canceled)

74. (original) The apparatus according to claim 69, comprising a distal pressure sensor, adapted to sense a pressure within the GI tract distal to the piston head.

75-77. (canceled)

78. (original) The apparatus according to claim 69, comprising a proximal pressure sensor, adapted to sense a pressure within the GI tract proximal to the piston head.

79-81. (canceled)

82. (original) The apparatus according to claim 69, comprising: a pressure sensor, adapted to measure a first pressure associated with operation of the apparatus ; and a control unit, adapted to regulate a second pressure associated with operation of the apparatus responsive to the measurement of the pressure sensor.

83-124. (canceled)

125. (original) Apparatus for use with a biologically-compatible-fluid pressure source, comprising:

an elongate carrier, adapted to be inserted through a proximal opening of a body lumen; and

a distal piston head coupled to a distal portion of the carrier and adapted to:
form a pressure seal with a wall of the lumen after the carrier has been inserted into the lumen, and

be advanced distally through the body lumen in response to pressure from the fluid pressure source applied to an external surface of the distal piston head.

126. (original) The apparatus according to claim 125, wherein the lumen includes a gastrointestinal (GI) tract, and wherein the distal piston head is adapted to form the pressure seal with the wall of the GI tract after the carrier has been inserted into the GI tract.

127. (original) The apparatus according to claim 126, wherein the GI tract includes a colon, and wherein the distal piston head is adapted to form the pressure seal with the wall of the colon after the carrier has been inserted into the colon.

128. (original) The apparatus according to claim 126, wherein the distal piston head is adapted to be in direct contact with the wall of the GI tract after the carrier has been inserted into the GI tract.

129. (original) The apparatus according to claim 126, wherein an outer surface of the distal piston head forming the pressure seal with the wall of the GI tract comprises a low friction coating suitable for facilitating sliding of the distal piston head against the wall of the GI tract.

130. (original) The apparatus according to claim 126, comprising:

a fluid source;
an optical member coupled in a vicinity of the distal portion of the carrier ; and
at least one fluid supply tube coupled to the carrier, the tube in fluid communication with the fluid source,

wherein the distal portion of the carrier is shaped so as to define one or more openings in fluid communication with the tube, the openings oriented so as to spray at least a portion of the optical member when fluid is provided by the fluid source.

131. (original) The apparatus according to claim 126, comprising:

an optical system comprising an optical member configured to provide omnidirectional lateral viewing; and
an inflation element, fixed in a vicinity of the distal portion of the carrier, and adapted to increase a diameter of the carrier in the vicinity to an extent sufficient to position the

optical member a distance from the wall sufficient to enable omnidirectional focusing of the optical system.

132. (currently amended) The apparatus according to ~~any one of claims 125-131 claim 125~~, wherein the apparatus is adapted to facilitate distal advancement of the distal piston head by facilitating passage of fluid out of the GI tract from a distal site within the GI tract distal to the distal piston head.

133-137. (canceled)

138. (original) The apparatus according to claim 132, comprising a vent tube, wherein the apparatus is adapted to facilitate the passage of the fluid out of the GI tract from the distal site within the GI tract through the vent tube.

139. (canceled)

140. (original) The apparatus according to claim 138, wherein the vent tube is adapted to passively permit the passage of the fluid out of the GI tract from the distal site within the GI tract.

141. (original) The apparatus according to claim 138, wherein the vent tube is adapted to be coupled to a suction source, whereby to actively facilitate the passage of the fluid out of the GI tract from the distal site within the GI tract.

142-145. (canceled)

146. (currently amended) The apparatus according to ~~any one of claims 125-131 claim 125~~, wherein the distal piston head is adapted to be inflated so as to form and maintain the pressure seal with the wall of the GI tract.

147. (original) The apparatus according to claim 146, comprising an auxiliary piston head, coupled to the carrier at a position proximal to the distal piston head,

wherein the auxiliary piston head is adapted to be inflated so as to form and maintain an auxiliary pressure seal with the wall of the GI tract, and

wherein:

(a) at at least one time while the carrier is within the GI tract, the distal piston head is adapted to be in a state of being already deflated at least in part, simultaneously with the auxiliary piston head being already inflated and being advanced distally through the GI tract in response to pressure from the fluid pressure source, and

(b) at at least one other time while the carrier is within the GI tract, the auxiliary piston head is adapted to be in a state of being already deflated at least in part, simultaneously with the distal piston head being already inflated and being advanced distally through the GI tract in response to pressure from the fluid pressure source.

148. (original) The apparatus according to claim 146, comprising a piston-head-pressure sensor, adapted to sense a pressure within the distal piston head.

149-151. (canceled)

152. (original) The apparatus according to claim 146, comprising a distal pressure sensor, adapted to sense a pressure within the GI tract distal to the distal piston head.

153-155. (canceled)

156. (original) The apparatus according to claim 146, comprising a proximal pressure sensor, adapted to sense a first measurable pressure, within a proximal portion of the GI tract proximal to the distal piston head.

157. (original) The apparatus according to claim 156, comprising a distal pressure sensor, adapted to sense a pressure distal to the distal piston head.

158-162. (canceled)

163. (original) The apparatus according to claim 146, comprising: a pressure sensor, adapted to measure a first pressure associated with operation of the apparatus; and a control unit, adapted to regulate a second pressure associated with operation of the apparatus responsive to the measurement of the pressure sensor.

164-166. (canceled)

167. (original) The apparatus according to claim 146, wherein the distal piston head is shaped to define a proximal lobe and a distal lobe, the lobes being in fluid communication with each other.

168. (original) The apparatus according to claim 167,
wherein a volume of a first one of the lobes is adapted to decrease in response to a constriction of the GI tract adjacent thereto,
wherein a volume of a second one of the lobes is adapted to remain constant in the absence of a change in GI tract diameter adjacent thereto, even if the volume of the first lobe is decreased, and
wherein a pressure within the first and second lobes is equal in steady state, regardless of the decrease in volume of the first lobe.

169-224. (canceled)

225. (original) A method comprising:
forming a pressure seal between a wall of a body lumen and a piston head shaped so as to define a proximal lobe and a distal lobe in fluid communication with each other; and advancing the piston head distally through the body lumen by applying fluid pressure to an external surface of the piston head.

226. (original) The method according to claim 225, wherein the lumen includes a gastrointestinal (GI) tract, and wherein forming the pressure seal comprises forming the pressure seal between the wall of the GI tract and the piston head.

227. (original) The method according to claim 226, wherein the GI tract includes a colon, and wherein forming the pressure seal comprises forming the pressure seal between the wall of the GI tract and the colon.

228. (original) The method according to claim 226, wherein forming the pressure seal comprises placing the piston head in direct contact with the wall of the GI tract.

229. (currently amended) The method according to ~~any one of claims 225-228~~ claim 225, wherein advancing the piston head distally comprises facilitating passage of fluid out of the GI tract from a site within the GI tract distal to the piston head, via a flexible vent tube that passes through the proximal and distal lobes of the piston head, and opens to the site.

230-238. (canceled)

239. (original) A method comprising:

forming a pressure seal between a piston head and a wall of a body lumen; and
applying fluid pressure to an external surface of the piston head to withdraw the piston head proximally through the body lumen.

240. (original) The method according to claim 239, wherein the lumen includes a gastrointestinal (GI) tract, and wherein forming the pressure seal comprises forming the pressure seal between the piston head and the wall of the GI tract.

241. (original) The method according to claim 240, wherein the GI tract includes a colon, and wherein forming the pressure seal comprises forming the pressure seal between the piston head and the wall of the colon.

242. (original) The method according to claim 240, wherein forming the pressure seal comprises placing the piston head in direct contact with the wall of the GI tract.

243. (original) The method according to claim 240, comprising facilitating passage of fluid out of the GI tract from a proximal site within the GI tract proximal to the piston head.

244. (currently amended) The method according to ~~any one of claims 239-243 claim 239~~, wherein forming the pressure seal comprises inflating the piston head.

245-374. (canceled)

375. (new) The apparatus according to claim 125, comprising an image-capturing device coupled to the carrier.

376. (new) The apparatus according to claim 125, comprising an optical member coupled to the carrier and configured to provide omnidirectional lateral viewing.

377. (new) The apparatus according to claim 125, wherein the piston head is adapted to be withdrawn proximally through the body lumen in response to pressure from the fluid pressure source.

378. (new) The apparatus according to claim 125, wherein the fluid pressure source includes a gas pressure source, and wherein the distal piston head is adapted to be advanced distally in response to gas pressure from the gas pressure source.

379. (new) The apparatus according to claim 126, and comprising a hydrophilic substance disposed at an external surface of the distal piston head.

380. (new) The apparatus according to claim 125,
wherein the body lumen includes a colon and the proximal opening includes a rectum,

wherein the apparatus comprises an annular balloon, shaped so as to form an opening therethrough for insertion of the carrier, the ballon adapted to be at least partially inserted into the

rectum, and to be expandable to form a pressure seal between the balloon and a wall of the colon in a vicinity of the rectum.